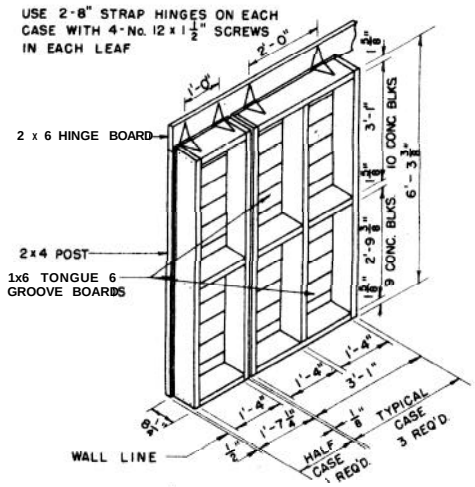
H-12-E
April 1980

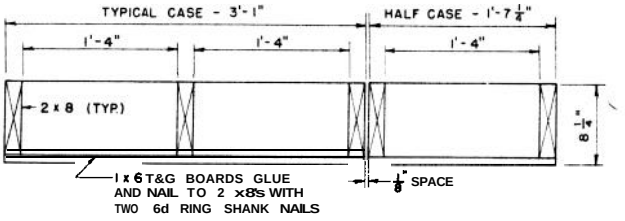
A storage unit is hinged to the wall in a basement corner. It is tilted-up to rest on stacked brick or concrete block and filled for overhead protection.

HOME FALLOUT SHELTER
tilt-up storage unit shelter-basement **location**

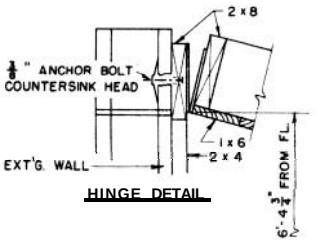
FEDERAL EMERGENCY
MANAGEMENT AGENCY


USE 2-8" STRAP HINGES ON EACH CASE WITH 4-No. 12 x 1½" SCREWS IN EACH LEAF
2 x 6 HINGE BOARD
2x4 POST
1x6 TONGUE & GROOVE BOARDS
10 CONC. BLKS.
9 CONC. BLKS.
WALL LINE
TYPICAL CASE 3 REQ'D.
HALF CASE REQ'D.

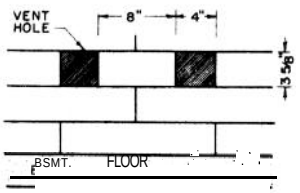
ISOMETRIC OF CASES



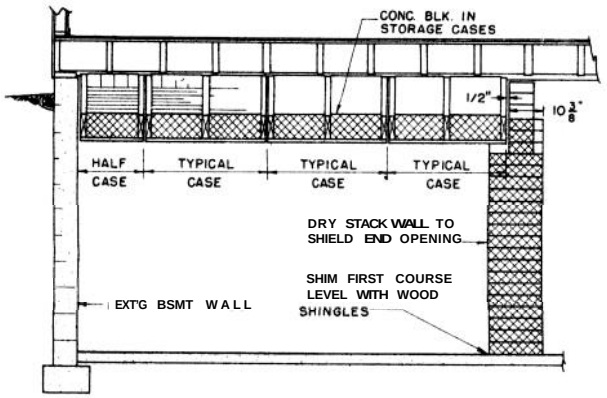
DETAIL SECTIONS



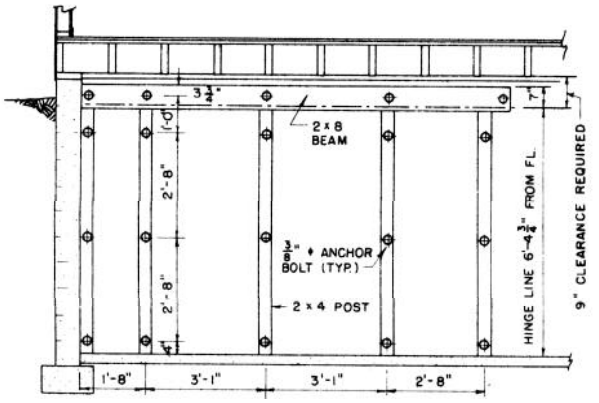
HINGE DETAIL



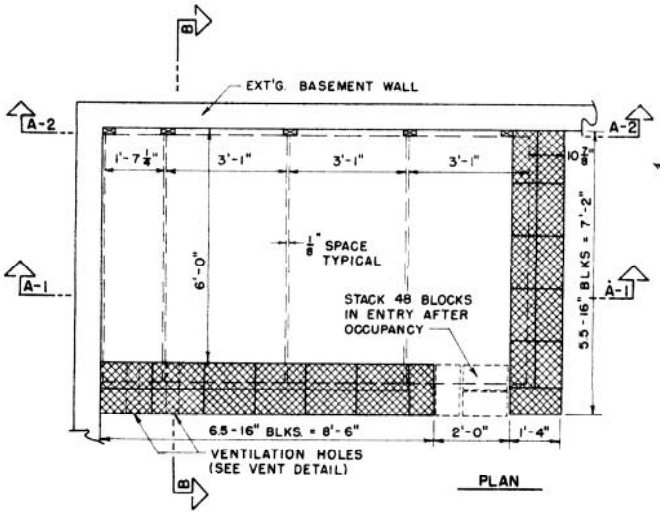
AIR VENT DETAIL



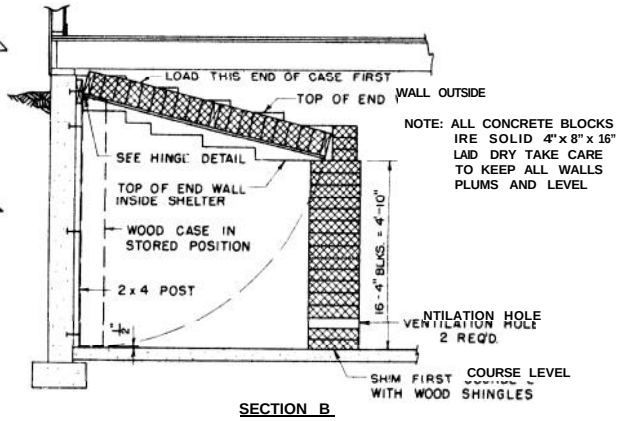
SECTION A-1



SECTION A-2



PLAN


LOAD THIS END OF CASE FIRST
TOP OF END WALL OUTSIDE
SEE HINGE DETAIL
TOP OF END WALL INSIDE SHELTER
WOOD CASE IN STORED POSITION
2 x 4 POST
16-4" BLKS = 4'-10"
VENTILATION HOLE 2 REQ'D.
SHIM FIRST COURSE LEVEL WITH WOOD SHINGLES

NOTE: ALL CONCRETE BLOCKS IRE SOLID 4" x 8" x 16" LAID DRY TAKE CARE TO KEEP ALL WALLS PLUMS AND LEVEL

SECTION B

GENERAL INFORMATION

The principal feature of this shelter is a roof composed of tilt-up storage units, the top of which is hinged to the wall. The units can be used as book cases, pantry shelves, or for miscellaneous storage. In an emergency, the storage units can be tilted up so that they rest on a stacked masonry wall built from materials stored nearby the units.

In basements where the outside ground level is above the top of the tilted-up units, adequate shelter from fallout radiation is provided by filling the units with brick or solid concrete block 8" thick. The shelter will house 6 people.

Approximately 2 man days are required to construct the storage units. The materials are readily available, from retail lumber yards.

MATERIALS LIST

Item	Actual Number Required
Masonry:	
4" x 8" x 16" solid concrete masonry units or	575 blocks or
2-1/4" x 4" x 8" solid bricks	3450 bricks
Lumber: ("Construction" or "No. 1" grades or better)	
posts 2 x 4 x 6'-4-1/4"	5 pieces
beam 2 x 8 x 10'-11-5/8"	1 piece
3 cases plus half case	
2 x 8 x 6'-3-3/8"	8 pieces
2 x 8 x 6'-0-1/8"	3 pieces
2 x 8 x 1'-4"	9 pieces
2 x 8 x 2'-9-5/8"	6 pieces
1 x 6 x 1'-7-1/4" T & G*	13 pieces
1 x 6 x 3'-1" T & G *	39 pieces
Hardware :	
3" x 8" x 1/8" unfinished steel strap hinges	8
#12 x 1-1/2" wood screws, c. s.	64
3/8" diam. x 6" square head unfinished anchor bolts	20
3/8" bolt size multiple-expanding machine bolt anchor	20
6d ring shanked nails	3 pounds
glue, protein emulsion (must develop 450 lbs. /sq. in.)	1-1/2 pints
16d common nails	3 pounds

*Square edge boards may be used.

Special tools :

bubble level to insure wall is level as it is stacked

3/4" star drill for making anchor holes in existing basement wall

CONSTRUCTION SEQUENCE

1. Prepare wood case units.
   a. Assemble wood units in accordance with drawings on sheet 2.
   b. Fasten hinges to hinge board with 1-1/2" #12 * wood screws.
   c. Locate and drill holes in basement walls to receive machine bolt anchors.
   d. Bolt hinge board and 2 x 4 posts to wall with 3/8" anchor bolts.
   e. Fasten wood case units to hinges with 1-1/2" #12* wood screws.
2. Provide suitable storage location for required concrete block.
3. Assembly of shelter.
   a. Remove items stored from wood case units.
   b. Mark location of shelter walls on floor with chalk.
   c. Move concrete blocks lo shelter location.
   d. Lay first course of blocks for shelter walls, shimming block as required with wood shingles until course is level. It is important that the wall be stacked as nearly level and plumb as possible for stability.
   e. Tilt up case units in corner of basement and support temporarily with 2 x 4 prop or household step ladder. Build-up 16" concrete block wall to support case units.
   f. Remove prop, lower case units to block wall and fill case units with concrete blocks.
   g. Build end wall up above the side of the end storage unit.
   h. Move 48 concrete blocks into shelter.
   i. Occupy shelter and fill entry with 48 blocks.

* Drill lead holes 5/32" in diameter, 1-3/8" deep and shank lead holes 3/16" in diameter, 3/8" deep.